

U.S. NUCLEAR REGULATORY COMMISSION
REGION I

Report No. 50-412/84-13

Docket No. 50-412

License No. CPPR-105

Priority --

Category A

Licensee: Duquesne Light Company
Robinson Plaza Building No. 2
Suite No. 210, PA Route 60

Facility Name: Beaver Valley Power Station, Unit 2

Inspection At: Shippingport, Pennsylvania

Inspection Conducted: September 10-14, 1984

Inspectors: *S. D. Reynolds, Jr.*
S. D. Reynolds, Jr.
Lead Reactor Engineer

11/20/84
date

R. Campbell
R. Campbell, NDE Technician

11/20/84
date

Approved by: *J. Durr*
J. Durr, Chief, Materials
and Processes Section, EPB, DETP

11/20/84
date

Inspection Summary: Routine, unannounced inspection by a regional based and one NDE Technician of activities pertaining to previously identified unresolved items, record review, qualification of post weld heat treatment, observation of welding, visual inspection of welds, review of welder performance qualification, filler metal control, and daily site tours. The inspection involved 61 hours of on-site inspection by the above inspection personnel.

Results: No violations were identified. Action has been taken on unresolved items of concern to the NRC; however, resolutions are not final in the two areas covered by this inspection.

DETAILS

1.0 Persons Contacted

Duquesne Light Company (DLC)

- *R. Coupland, Director, Quality Control
- *C. Davis, Director, Quality Assurance
- *H. Good, Sr., QC Welding Supervisor
- *J. Waslousky, Sr., QA Engineer
- *J. Hultz, Construction Liaison
- *S. Hall, Sr. Project Engineer
- *M. Howman, Compliance Engineer
- *L. Williams, Consultant
- *J. Griffin, Superintendent Construction, Secondary System
- *C. Suggs, Sr. Engineer
- *M. Pavlic, Director Milestone Management
- *D. Rohm, Assistant Director QC
- *H. Siegel, Engineering Manager
- *R. Williamson, Surveillance Inspection
- E. Woolever, Vice President, Nuclear Construction
- J. Carey, Executive Vice President
- R. Wallauer, Compliance Engineer
- M. Zaki, Senior Project Engineer
- R. Cunningham, Construction Liaison Engineer
- C. Majumdar, Assistant Director, SQC
- H. Crooks, Jr., Assistant Director, SQC

Stone & Webster Engineering Company (SWEC)

- *R. Wittschen, Licensing Engineer
- *A. Burke, Materials Engineer (Boston)
- *J. Novak, Superintendent of Construction
- *A. McIntyre, Superintendent Site Engineering
- *K. Fellers, Assistant Superintendent, Construction
- F. Sullivan, Assistant Superintendent Construction
- *F. Foley, Site Manager
- D. Cox, Quality Data Supervisor
- A. Allison, Document Review
- H. Krafft, Lead Materials Engineer (Boston)
- C. Bishop, Construction Manager
- R. Wittshen, Licensing Engineer
- A. Champagne, Assistant Superintendent

Schneider Power Corporation (SPC)

- K. Flowers, QC Inspector
- T. Topolewski, QA Inspector
- J. Betke, Rod Issur Station Attendant

T. Southern, Shift Supervisor (Welding)
 R. Cole, Shift Supervisor (Welding)

*Indicates those present at the exit interview.

2.0 Background

The purpose of the inspection was to conduct a general inspection of safety related welding operations and the quality system that insures that these operations are conducted in accordance with licensee commitments to the applicable "Codes and Standards" rules. The status of welding operations was estimated by the inspector, resident inspector and licensee personnel as follows:

% Completion

Pipe Welding
 Class 1 - 90
 Class 2 - 80
 Class 3 - 80
 Pipe Support Welding - 65
 Secondary Side Non Safety Related - 90

At the time of inspection a minimum amount of Category 1 welding was being conducted.

Review of the current SWEC Weld Quality Performance Report of (WTC-3, Rev 5, 10/7/82) of 9/11/84 indicates 55,000 linear inches of weld with a weld discontinuity severity percentage (WDSP) of 2.19 on final RT joints (first submittal) and a WDSP of 1.32 for repair welds.

Currently, no construction post weld heat treatments (PWHT) have been conducted on Category 1 welds. However, 30-40 joints of P1 materials will be given PWHT in the next month, including 12 piping welds which will be given PWHT due to inadequate original vendor supplied PWHT

No violations were identified.

3.0 Licensee Action on Previous Inspection Findings

(Open) Unresolved item 83-16-02. This item concerns the use of GAP-A-LETS for setting the required stand-off distance for pipe insertion in socket fillet welds. The inspector and the licensee reviewed SWEC documents written in response to the licensee letter 3DLC-6727 requesting evaluation of potential problems caused by the use of GAP-A-LETS. The licensee indicated that they were not satisfied that the SWEC evaluation was complete and adequate; and were not ready to propose an answer closing this item.

This item will be held open.

(Open) Unresolved Item 84-02-01 through 84-02-05. These items are all related to the question of verbatim compliance to AWS D1.1 where the governing design specification is AISC. The licensee had discussions with representatives from SWEC (Boston), SWEC (Site) and cognizant licensee engineering, executive staff management and QA/QC personnel. SWEC presented proposed responses to these unresolved items and discussed their interpretative and engineering conclusions which prompted their responses. The licensee indicated that they were not satisfied with the responses as proposed and were not ready to propose resolution at this time.

The inspector reiterated the lack of a formalized document which would establish engineering authority, control dissemination of engineering changes (essentially design changes), and provide explicit engineering justifications and licensee approval to clarify the modifications of D1.1 permitted by the third paragraph of 1.1 of the Commentary to D1.1.

The inspector reviewed a procedure qualification record (PQR) for welding A500 Grade B tubular steel with a 1/4" thickness (T) and 1/2" corner radius (R) which demonstrated that the actual throat produced (S) was 1/4". The D1.1 Table 2.3.14 requirement for assumed effective throat (5/16 R) would be 0.156 which is almost 100 mils less than the actual throat. The PQR results were 60% greater than the assumed D1.1 effective throat.

This item will be held open.

4.0 Piping and Pipe Supports

Piping and pipe Supports are field installed by Schneider Power Corporation (SPC) in accordance with the requirements of Field Construction Procedures (FCP) and drawings prepared and controlled by Stone and Webster Engineering Corporation (S&W). Quality Control inspection of piping and pipe supports is provided by Site Quality Control (SQC) inspectors to the requirements of Duquesne Light Company (DLC) Inspection procedures under DLC supervision.

Construction supervision, craft and site QC personnel show evidence of adequate training and knowledge of good industrial working practices necessary for satisfactory completion of job tasks. Training of QC Inspectors is provided by the DLC Training Department with periodic refresher courses and upgraded training as required. Training of craft workers and engineering personnel is coordinated by the S&W Training Department.

The inspector interviewed construction supervisors, craft fitters and welders and quality control inspectors to determine the overall effectiveness of training and management in implementing procedural requirements as necessary to install and inspect safety related piping and to document these activities in accordance with ASME requirements. Interviews and discussions were conducted with responsible persons in the records management, purchasing, Site Quality Control, QA and engineering departments. Work in progress on piping which was inspected included welding, weld repairs, inspection, control handling and storage of filler metal/weld rod materials with related documentation.

An inspection was conducted by a regionally based Nondestructive Examination (NDE) Specialist on safety-related pipe to verify the adequacy of the licensee's QA/QC visual weld inspection program. Welds inspected were ASME Section III, Classes 1, 2 and 3 and some non-safety related pipe welds.

Welds inspected were randomly selected by the NRC Inspector to include 50 welds which were accessible for inspection and previously inspected by the licensee.

The following welds were inspected:

ISO/Drawing	Line	Weld	Class	Size
110227	2RCS-004	FW02	1	29" S/S
110802	2SIS-024	FW02	2	6" S/S
110802-1A	2SIS-024	FW01	2	6" S/S
107007	2RCS-036	FW04	1	2" S/S
110227	2RCS-006	FW03	1	31" S/S
110237	2RCS-041	FW502RI	1	8" S/S
110237	2RHS-023	FW500R1	1	8" S/S
108208	2RHS-023	FW06	1	10" S/S
108208	2RHS-023	FW05	1	10" S/S
108203	2SIS-66-2	FW02	2	12" S/S
108203	2SIS-066	FW01	2	12" S/S
108207	2SIS-071	FW05	1	12" S/S
108207	2SIS-071	FW01	1	12" S/S
108207	2SIS-071	FW02	1	12" S/S
110902-2A	2RCS-080	FW05	1	4" S/S
110902-2A	2RCS-080	FW500	1	4" S/S
110902-2A	2RCS-080	VW5B	1	4" S/S
110902-2A	2RCS-080	VW5C	1	4" S/S
107107	2RHS-004	FW02	2	10" S/S
110712-9	2SIS-010	FW04	2	10" S/S
110712-9	2SIS-010	FW03	2	10" S/S
110712-9	2SIS-010	FW02	2	10" S/S
110705	2CCP-099	FW03	3	18" C/S
*207101	2RHS-015	FW01	2	6" S/S
107111	2RHS-012	FW02	2	10" S/S
108208	2RHS-023	FW06	1	12" S/S
108208	2RHS-023	FW05	1	12" S/S
108208	2RHS-016	FW19	1	12" S/S
107116	2RHS-010	FW03	2	10" S/S
107402	2CHS-345	FW14	2	10" S/S
110716-1	2SWS-343	FW06	3	6" C/S
110716-1	2SWS-343	FW08	3	6" C/S
110715-3	2SWS-330	FW03	3	6" C/S
101708	2FWE-127	FW01	2	4" C/S
101708	2FWE-113	FW05	2	4" C/S
101708	2FWE-113	VWA	2	4" C/S
107906	2RSS-003	FW02	2	12" S/S

107906	2RSS-003	FW500	2	12" S/S
107906	2RSS-003	FW03	2	12" S/S
107124	2SIS-011	FW04R1	2	10" S/S
107908	2RSS-011	FW05	2	10" S/S
107908	2RSS-011	FW02R1	2	10" S/S
110712-4	2SIS-011	FW01	2	10" S/S
110712-9	2SIS-010	FW02	2	10" S/S
110712-9	2SIS-010	FW04	2	10" S/S
107907	2RSS-004	FW02	2	10" S/S
107907	2RSS-004	FW03	2	10" S/S
110712-9	2SIS-014	FW01	2	6" S/S

*Category II (Non-Safety Related)

These ASME Section III full penetration welds were inspected per site welding inspection procedure IP 7.2. Welds were inspected for size, surface discontinuities and workmanship. No violations were identified.

5.0 Review of Site Procedures and Specifications

The following procedures and specifications were reviewed for compliance to the licensee's FSAR commitment and applicable codes, standards and specifications.

WPQP 001	Welding procedure for carbon steel
WPQP 006	Welding procedure for stainless steel
WPQP 009A	Welding with consumable insert
WPQP 047	Welding procedure for sheet metal
FCP 601.3	Weld Wire and Filler Metal Control, Handling and Storage Procedure
FCP 601.5	General Welding Procedures
IP 7.2	Welding Inspection Procedure

The documents reviewed met applicable codes and standards. No violations were identified.

6.0 Post Weld Heat Treatment (PWHT)

The inspector met with the cognizant technical representatives of SWEC, Schneider Power Corporation, and DLC QA to discuss the metallurgical significance of the post weld heat treatments previously discussed (paragraph 2.0). The inspector reviewed SWEC letter 2DLS-22164, LR 8407200004. (Ray Sircar to Washabaugh) dated 7/20/84 concerning PWHT. SWEC indicated that a thorough review will be made of the material certification simulated PWHT records to insure that the vendor time/temperature material qualifications will not be jeopardized by the additional exposure of the construction PWHT. The inspector discussed potential problems with heat sink mismatch and excessive thermocouple minimum/maximum temperature range control. The Schneider representative indicated that PWHT procedures call

for the process to be aborted if the temperature bands prescribed are not met, rather than permitting on-the-spot changes in the procedures to allow the use of low temperature/longer time rules permitted by the code.

No violations were identified.

7.0 Filler Metal Control

The inspector reviewed representative field purchase requests, SWEC filler metal specifications, SWEC purchase orders (P.O.), site QC receipt inspection documents, and SWEC Document Data Forms (and document packages) for consumable inserts, SMAW and GTAW filler metals. Also reviewed were the procedures used by the rod issue stations to control the storage, issuance and receipt of unused filler metals.

It was noted in the review of P.O. 2BV-55933 that the current revision (4/16/81) of SWEC ME106A eliminated the requirement for PWHT properties for E8018-C3 SMAW electrodes. This will require SWEC to insure that no PWHT is conducted on site weld deposits made with this filler metal if utilized on P3 weldments.

Review of P.O. 2BV-57671 indicated that 300# of (Inconel) type 625 GTAW filler metal was purchased to SWEC 108A without analysis of deposited weld metal per lines 34 to 36 of 108A. This filler metal is not intended for Category 1 welding. SWEC issued E&DCR 2PS-3668 to change the 108A document during the course of the inspection.

The document data package for both of the previously mentioned purchase orders indicated that the SWEC Document Review system was thorough in identifying details where the filler metals failed to meet verbatim requirements of the quality system.

No violations were identified.

8.0 Weld History Data Package Review

The inspector reviewed a significant number of completed weld history packages to determine conformance to site welding and quality requirements. The effectiveness of the film cartridge QA document system was reviewed and easily produced the completed weld history records required by the piping inspection. Documents on the screen and copies were readable and complete.

No violations were identified.

9.0 Unresolved Items

Unresolved Items are matters about which more information is required in order to ascertain if they are violations or deviations. Unresolved items are discussed in paragraph 3.

10.0 Exit Meeting

The inspector met with licensee and Architect-Engineer/Constructor representatives (see paragraph 1) at the end of the inspection on September 14, 1984. In addition, Mr. G. Walton, the NRC Senior Resident Inspector was present. The inspector summarized the scope of the inspection and indicated the inspection findings. At no time during this inspection was written material provided to the licensee by the inspectors.